Pak

10/12.

Knot invariants (Kauffman bracket + Jones polynomial)

Recall R_i moves

Sort of obvious theorem, I'm going to call it
Proposition: Two different knot drawings* on a plane can be transformed one into another by a sequence of R moves

* two drawings of ~~a~~ the same (topologically) knot
like projections

Faux historical approach

Vaughn (?) Jones 1985 ~~[illegible]~~ (Impossible to talk to because he's from New Zealand)

$f: K \to \mathbb{Z}[[t]]$ (= poly's of t + t^{-1})

$$t^{-1} f(\times) - t f(\times) = \left(\sqrt{t} - \tfrac{1}{\sqrt{t}}\right) f(\asymp)$$

$$f(O) = 1$$

Thm G connected, $M = M(G)$ medial graph

$$\sum_{\substack{\text{cuts } c \\ \text{in } M(G)}} x^{b(c)} y^{w(c)} = T_G(x+1, y+1)$$

Use medial graph to get an alternating knot (or links) by orienting a path through + alternating over + under at intersections

$$L_K(A,B,d) = \sum_{\text{cuts } c} A^{\#\text{blue cuts}} B^{\#\text{red cuts}} d^{\#\text{cycles}}$$

[illegible] (to be lazy, $\langle \cancel{K} \rangle = L_{\cancel{K}}(A,B,d)$)

Checking recursions for L_k through cuts, R moves ② + ③ work fine, but not ①